

Figure 1. Haze formation, Five different Production Lots of PC siloxane co-polym

Lot	A	B	C	D	E
% siloxane	6	6	5.1	4.9	4.8
MW	22814	23028	22843	22371	22674
Haze, 620 F, std.	2.3	2.8	1.5	1.4	1.4
Haze; 620 F, 5 min dwell	14	24.9	2.4	3.1	4.1
Haze, 620 F, 10 min dwell	36	68.3	4.3	11.6, 3.0	13.5

Figure 2: The effect of Various Phosphorus-based Acids on Haze Formation in PC siloxane Co-polymer on Abusive Molding
(All phosphorus acids evaluated at equivalent molar levels).

	Comp	Ex 1	Ex. 1	Ex. 2	Ex. 3	Ex. 4	Ex. 5	Ex. 6
PC siloxane , lot A	100%	100%	100%	100%	100%	100%	100%	100%
H3P03		0.9 ppm	2.25 ppm					
H3P04				1.08 ppm	2.74 ppm			
MZP(monozinc phosphate)						3.24 ppm	8.1 ppm	
620 F, std cycle % haze	4.4	2.3	1.8	1.6	1.3	1.4	1.4	1.5
620 F, 10 min dwell, % haze	76.1	23.3	1.9	1.1	1.4	1.4	1.4	3.9
MVR , 18 min Dwell	11.17	9.21	8.74	8.46	8.50	8.38	7.91	
MVR, 6 min Dwell	10.26	9.01	8.47	8.01	7.95	8.08	7.72	
300 C, viscosity, P	5516.0	5990.0	6168.0	6316.0	6425.0	6404.0	6626.0	
% Change, 30 min , 300 C	-14.0	-13.0	-12.0	-13.0	-12.0	-10.0	-8.5	
620 F, std cycle % haze	4.4	2.3	1.8	1.6	1.3	1.4	1.4	1.5
% haze, autoclave, 24 hrs	8.3	6.1	5.1	4.2	4.5	5.6	5.4	
48 hrs	12.4	9.9	8.5	7	8.2	10.3	12.8	
72 hrs	13.4	11.6	10.1	8.7	11.7	13.4	15.5	
120 hrs	16.5	14.8	16.1	16.3	22.1	25.9	20.6	
144 hrs	18.9	20.3	22	22.2	29.3	34.1	21.9	
168 hrs	24.6	22.6	23.7	23.8	31.7	36.7	40.6	
192 hrs	25.9	23.5	25.2	23.4	31.2	36.4	42.2	
216 hrs	28.6	26.1	28.5	26.7	36.3	40.6	48.2	
240 hrs	30.1	27.6	30.8	29.1	38.8	43.9	53.5	

MW , 240 hrs 20717 20925 20759 20863 20500 20717 20722
(initial MW,Comp. Ex. 1 , 22308)

Figure 3. Repeat Testing of H3PO3 in a Different lot of PC-siloxane Resin:
Testing the Effect of H3PO3 of a lot of Resin that Exhibits Relatively Low Haze on Abusive Molding

Lot E	Comp. Ex.2		Ex 7		Ex 8		Comp.Ex 3	
	100%		100%		100%		100%	
H3PO3	0.00		0.9 ppm		2.25 ppm		0.0	
butyl tosylate	0.00						0.0	
MVR , 18 min Dwell	10.16		9.43		9.06		9.56	
MVR, 6 min Dwell	8.94		8.97		8.85		9.00	
620 F, std cycle		1.4		1.2		1.0		1.2
620 F, 5 min dwell		2.1		1.0		1.0		3.3
620 F, 10 min dwell		7.0		1.0		0.6		12.9
620 F, std cycle		1.3		1		1		1.2
24 hrs		2.1		1.8		2		2.1
48 hrs		2.6		2.6		2.8		3.1
72 hrs		2.6		4.2		3.6		4.5
96 hrs		3.5		4.4		7.3		8
120 hrs		3.9		4.8		8.1		7.8
144 hrs		3.9		5.4		8.4		9.5
168 hrs		4.9		6.3		9		12.4

Figure 4: Multilot Testing of H3PO3 in Five Different Lots of PC-siloxane Resin to Demonstrate the Generality of the Stabilization Effect

	Comp Ex. 4	Ex. 9	Ex. 10	Comp Ex. 5	Ex. 11	Ex. 12	Comp Ex. 6	Ex. 13	Ex. 14	Comp Ex. 7	Ex. 15	Ex. 16	Comp Ex. 8	Ex. 17	Ex. 18
Lot F	100%	100%	100%												
Lot G				100%	100%	100%									
Lot H							100%	100%	100%						
Lot I										100%	100%	100%			
Lot J															
H3PO3	0.00	0.9 ppm	2.25 ppm	0.00	0.9 ppm	2.25 ppm	0.00	0.9 ppm	2.25 ppm	0.00	0.9 ppm	2.25 ppm	0.00	0.9 ppm	2.25 ppm
% siloxane	4.7%			5.2%			4.9%			5.0%			4.9%		
MW	18,563			20,445			20,877			25,062			23,427		
%Haze, 620 F, std cycle	2.1, 2.2	1.8, 1.9	1.5, 2	2.2	2	2	2.2	1.9	1.6	1.6	1.3	1.1	1.4	1.5	1.4
%Haze, 620 F, 5 min dwell	2.4, 5.1	2.5, 2.8	1.9, 2.6	3.2	2.4	2.5	3.2	2.1	1.7	1.9	1.4	1.2	1.7	2.1	1.6
%Haze, 620 F, 10 min dwell	26.6, 29.1	7.2, 10.8	3.3, 7.3	10.7	3	2.6	14.1	2.8	1.8	3.4	1.7	1.3	4.7	2.7	1.8

Lot F was tested in duplicate in separate experiments.